



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,339	03/18/2004	Jimmy Philip	140272-1	3750
6147	7590	10/19/2005	EXAMINER	
GENERAL ELECTRIC COMPANY GLOBAL RESEARCH PATENT DOCKET RM. BLDG. K1-4A59 NISKAYUNA, NY 12309			JAGAN, MIRELLYS	
			ART UNIT	PAPER NUMBER
			2859	

DATE MAILED: 10/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/802,339	PHILIP ET AL.
	Examiner Mirells Jagan	Art Unit 2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 09 August 2005.

2a) This action is FINAL.                    2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-9,11-21 and 32-35 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-9,11-21 and 32-35 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_.  
 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date \_\_\_\_\_.  
 5) Notice of Informal Patent Application (PTO-152)  
 6) Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of Group I in the reply filed on 8/9/05 is acknowledged. Applicant has canceled claims 22-31, which were drawn to the nonelected invention, there being no allowable generic or linking claim. The requirement is still deemed proper and is therefore made **FINAL**.

### ***Claim Objections***

2. Claims 13, 14, and 33 are objected to because of the following informalities:  
Claim 33 should depend on claim 32 instead of claim 1.  
Claim 13 should be dependent on claim 1 instead of cancelled claim 10.  
Claim 14 is objected to for being dependent on objected base claim 13. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 5, 6, 13, and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 6,338,571 to Chen.

Chen discloses an assembly comprising:

a thermistor element (24);

a positioning device (30) for positioning the element at a predetermined location within the assembly;

at least two lead wires extending from the element; and

a moisture-proof shield disposed to cover the element and the positioning device, the shield comprising a surface energy enhancing molding material (23) disposed over the element and the positioning device;

wherein the location is at a central location within the assembly; the positioning device comprises a cavity extending through the device and adapted (at 33) for receiving the element; at least three internal lobes (32) adapted to (using 211) position the element within the assembly (22); and a groove (31) positioned between two of the lobes (see figures 2 and 3; and column 2, lines 33-65).

Furthermore, the molding material (23) of Chen is considered to be a ‘surface energy enhancing’ material since the specification does not provide a definition of ‘surface energy enhancing’. The specification only describes the ‘surface energy enhancing’ material as being a material having moisture-proof capabilities. Therefore, since the molding material (23) of Chen is moisture-proof and functions as an adhesive (an epoxy) to cover the sensor element and the positioning device, it is considered to be a ‘surface energy enhancing’ material.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-3, 5-7, 9, 11, 13, 14, 16, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication 2003/0146819 to Shibayama in view of Chen.

Shibayama discloses an assembly comprising:

a thermistor element (10) comprising a thermistor made of a ceramic material and having a cross-sectional profile that is either circular or square shaped (thermistors are either circular or square shaped);

at least two metal lead wires (FeCr 30) extending from the element;

a conductor material (40) coupled to the thermistor element through the lead wires; and

a surface enhancing insulating material (epoxy 90) disposed over the conductor material;

wherein the lead wires and the conductor material are welded together (see figures 1 and 2A).

The material (90) of Shibayama is considered to be a ‘surface energy enhancing’ material since the specification does not provide a definition of ‘surface energy enhancing’. The specification only describes the ‘surface energy enhancing’ material as being a material having moisture-proof capabilities. Therefore, since the material (90) of Shibayama is moisture-proof

and functions as an adhesive (an epoxy) to cover the conductor material, it is considered to be a ‘surface energy enhancing’ material.

Shibayama does not disclose the assembly comprising a positioning device for positioning the element at a predetermined central location within the assembly; and a moisture-proof shield disposed to cover the element and the positioning device, the shield comprising a surface energy enhancing molding material disposed over the element and the positioning device; the positioning device comprising a cavity extending through the device and adapted for receiving the element; at least three lobes adapted to position the element within the assembly; and a groove positioned between two of the lobes.

Chen discloses an assembly comprising a thermistor element (24); a positioning device (30) for positioning the element at a predetermined location within the assembly; at least two lead wires extending from the element; and a moisture-proof shield disposed to cover the element and the positioning device, the shield comprising a surface energy enhancing molding material (23) disposed over the element and the positioning device; wherein the location is at a central location within the assembly. The positioning device comprises a cavity extending through the device and adapted (at 33) for receiving the element; at least three lobes (32) adapted to (using 211) position the element within the assembly (22); and a groove (31) positioned between two of the lobes. Chen teaches that it is beneficial to provide the sensor with a positioning device in order to orient the sensor toward the tip of the probe so that heat will rapidly and evenly transmitted to the sensor in order to obtain more rapid and accurate temperature measurements (see figures 2 and 3; column 2, lines 33-65; and column 3, lines 1-5). The molding material (23) of Chen is considered to be a ‘surface energy enhancing’ material

Art Unit: 2859

since the specification does not provide a definition of 'surface energy enhancing'. The specification only describes the 'surface energy enhancing' material as being a material having moisture-proof capabilities. Therefore, since the molding material (23) of Chen is moisture-proof and functions as an adhesive (an epoxy) to cover the sensor element and the positioning device, it is considered to be a 'surface energy enhancing' material.

Referring to claim 1, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the assembly of Shibayama by adding a positioning device in the probe of the assembly as taught by Chen, in order to obtain more rapid and accurate temperature measurements.

Referring to claims 11 and 14, Shibayama and Chen disclose an assembly having an epoxy as the surface enhancing material in the probe disposed over the sensor and the positioning device. Furthermore, Shibayama discloses that the insulating material (90) covering the conductor material is an epoxy. Therefore, the surface energy enhancing material is considered to be disposed over the sensor and positioning device, and over the conductor material, and are considered to be 'compatible' since both materials are the same surface enhancing material, i.e., epoxy.

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shibayama and Chen, as applied to claims 1-3, 5-7, 9, 11, 13, 14, 16, and 32 above, and further in view of U.S. Parent 6,485,175 to Nimberger et al [hereinafter Nimberger].

Shibayama and Chen disclose an assembly having all of the limitations of claim 4, as stated above in paragraph 6, except for the material of the positioning device being made of PVC.

Nimberger discloses a thermistor probe assembly having a thermistor and lead wires connected to the thermistor and to conductor material for obtaining temperature measurements from the thermistor. The thermistor and lead wires are encased in a guide tube (97G) for inserting in a probe of the assembly, wherein the tube is made of PVC. Nimberger teaches that it may be desirable to provide a PVC material in order to electrically isolate the sensing assembly (see figure 10; column 10, lines 21-40)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the assembly of Shibayama and Chen by making the positioning device of PVC, since Nimberger teaches that PVC is a useful material for use in a thermistor probe assembly when it is desired to provide electrical isolation, and since the courts have held that a selection of a material on the basis of suitability for intended use of an apparatus would be entirely obvious See *In re Leshin*, 125 USPQ 416 (CCPA 1960).

8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shibayama and Chen, as applied to claims 1-3, 5-7, 9, 11, 13, 14, 16, and 32 above, and further in view of U.S. Patent 4,548,780 to Krohn.

Shibayama and Chen disclose an assembly having all of the limitations of claim 8, as stated above in paragraph 6, except for the material of the conductor material being brass.

Krohn discloses a thermostatic probe assembly having a sensing element and lead wires connected to a conductor material (12) for obtaining thermal signals and connecting to electrical circuitry. The conductor material is made of brass for connecting the assembly to appropriate electrical circuitry (see column 2, lines 49-51).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the assembly of Shibayama and Chen by making the conductor material of brass, since Krohn teaches that brass is a useful material for a conductor material in a probe assembly, and since the courts have held that a selection of a material on the basis of suitability for intended use of an apparatus would be entirely obvious See *In re Leshin*, 125 USPQ 416 (CCPA 1960).

9. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shibayama and Chen, as applied to claims 1-3, 5-7, 9, 11, 13, 14, 16, and 32 above, and further in view of U.S. Patent 5,456,682 to Edwards et al [hereinafter Edwards] and the prior art disclosed by Applicant on page 4, lines 1-5 of the specification [hereinafter Applicant].

Shibayama and Chen disclose an assembly having all of the limitations of claim 12, as stated above in paragraph 6, except for the surface enhancing material comprising Loctite (P770, P7452, or P34589).

Edwards discloses a temperature probe having a thermistor at a tip of the probe. A surface energy enhancing molding material is disposed over the element in the probe to encapsulate (seal) the thermistor and lead wires in the probe. Edwards teaches that loctite is a

useful material for providing the encapsulation to seal the thermistor in the probe (see column 7, lines 38-55).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the assembly of Shibayama and Chen by using Loctite as the surface energy enhancing molding material since Edwards teaches that loctite is useful in a temperature sensing probe to seal the thermistor in the probe, and since the courts have held that a selection of a material on the basis of suitability for intended use of an apparatus would be entirely obvious See *In re Leshin*, 125 USPQ 416 (CCPA 1960).

Furthermore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use any one of the claimed loctites, i.e., loctite (P770, P7452, or P34589), as the loctite material in the assembly of Shibayama, Chen, and Edwards since these are all known types of loctite that are commercially available in the art, as disclosed by Applicant, and since the courts have held that a selection of a material on the basis of suitability for intended use of an apparatus would be entirely obvious See *In re Leshin*, 125 USPQ 416 (CCPA 1960).

10. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shibayama and Chen, as applied to claims 1-3, 5-7, 9, 11, 13, 14, 16, and 32 above, and further in view of U.S. Patent 6,305,841 to Fukaya et al [hereinafter Fukaya].

Shibayama and Chen disclose an assembly having all of the limitations of claim 17, as stated above in paragraph 6, except for the metal material of the lead wires comprising steel.

Art Unit: 2859

Fukaya discloses a thermistor probe assembly having a thermistor made of a ceramic material having a square-shaped cross-sectional profile attached lead wires at the probe tip. The probe assembly further comprises a conductor material (lead wires 4) coupled to the lead wires of the thermistor by welding for connecting to electrical circuitry to obtain temperature measurement from the thermistor signals. The lead wires are made of a metal, such as stainless steel, and the conductor material is covered with insulation (plastic material) in order to protect and strengthen the conductor material (see figure 1; column 4, lines 38-48; and column 6, lines 14-40 and 59-63).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the assembly of Shibayama and Chen by making the lead wires of a metal such as stainless steel since Fukaya teaches that steel is a useful material for making the lead wires in a thermistor probe assembly, and since the courts have held that a selection of a material on the basis of suitability for intended use of an apparatus would be entirely obvious See *In re Leshin*, 125 USPQ 416 (CCPA 1960).

11. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shibayama and Chen, as applied to claims 1-3, 5-7, 9, 11, 13, 14, 16, and 32 above, and further in view of U.S. Patent Application Publication 2002/0071475 to Betzner et al [hereinafter Betzner].

Shibayama and Chen disclose an assembly having all of the limitations of claim 15, as stated above in paragraph 6, except for the lead wires being soldered to a conductor material.

Betzner discloses that it is known in the art to connect the lead wires of a thermistor of a probe assembly to a conductor material by soldering them together. The conductor material

Art Unit: 2859

coupled to the lead wires of the thermistor connects the thermistor to electrical circuitry to obtain temperature measurement from the thermistor signals (see paragraph 2).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the assembly of Shibayama and Chen by soldering the lead wires to conductor material, as taught by Betzner, in order to securely connect the thermistor to electrical circuitry and obtain temperature measurements from the thermistor signals, and since soldering is a known alternative to welding, as used by Shibayama and Chen, for joining two metal elements together.

12. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shibayama and Chen, as applied to claims 1-3, 5-7, 9, 11, 13, 14, 16, and 32 above, and further in view of U.S. Patent Application Publication 2002/0131477 to Kurano.

Shibayama and Chen disclose an assembly having all of the limitations of claim 18, as stated above in paragraph 6, except for the lead wires comprising copper.

Kurano discloses a thermistor probe assembly having a thermistor and lead wires connected to the thermistor. Kurano teaches that a metal such as copper is a useful material for making the lead wires, which further connect to a conductor material and to electric circuitry to obtain temperature measurement from the thermistor signals (see figure 1; paragraphs 4-7 and 23).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the assembly of Shibayama and Chen by making the lead wires of copper, since Kurano teaches that copper is a useful material for making lead wires in a

thermistor assembly in order to connect the thermistor to electrical circuitry and obtain temperature measurements from the thermistor signals, and since the courts have held that a selection of a material on the basis of suitability for intended use of an apparatus would be entirely obvious See *In re Leshin*, 125 USPQ 416 (CCPA 1960).

13. Claims 19-21, 34, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Shibayama.

Chen discloses a positioning device (30) for positioning a thermistor element at a centered location within a probe assembly; the positioning device comprising:  
a cavity extending therethrough and adapted (at 33) for receiving the element; and  
a groove (31) extending along the length of the positioning device and positioned between internally facing lobes and configured to adjust a dimension of the cavity to position the thermistor element in the assembly and provide a path for filling the cavity with a material, and adapted for positioning the thermistor assembly (wires) within the cavity. The positioning device is inserted in a probe of the assembly that is injected with a material to hold the positioning device and thermistor in place (see figures 2 and 3; and column 2, lines 33-65).

Chen does not disclose the positioning device having at least three externally directed self-centering lobes adapted to position the positioning device and the thermistor element therein within the assembly.

Shibayama discloses a positioning device for positioning a thermistor element at a central location within a probe assembly, the positioning device comprising a cavity extending therethrough and adapted for receiving part of the thermistor element (wires); and at least three

Art Unit: 2859

externally directed self-centering lobes adapted to position the positioning device and the thermistor element therein within the assembly. Shibayama teaches that it is beneficial to provide lobes around the positioning element when injecting material (epoxy) in the assembly in order to prevent the positioning device from shifting out of position due to the pressure encountered when the material is inserted (see figures 7C and 7D; and paragraphs 71-73).

Referring to claims 19 and 34, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the assembly of Chen by adding at least three externally directed self-centering lobes to the positioning device, as taught by Shibayama, in order to prevent the positioning device and the thermistor from shifting out of position due to the pressure encountered when the positioning device is inserted. Furthermore, in placing the external lobes on an exterior surface of the positioning device, the groove will be located between any two of the lobes.

14. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Shibayama.

Chen discloses an assembly having all of the limitations of claim 33, as stated above in paragraph 4, except for at least three of the lobes being externally directed.

Shibayama discloses a positioning device for positioning a thermistor element at a central location within a probe assembly, the positioning device comprising a cavity extending therethrough and adapted for receiving part of the thermistor element (wires); and at least three externally directed self-centering lobes adapted to position the positioning device and the thermistor element therein within the assembly. Shibayama teaches that it is beneficial to provide

Art Unit: 2859

lobes around the positioning element when injecting material (epoxy) in the assembly in order to prevent the positioning device from shifting out of position due to the pressure encountered when the material is inserted (see figures 7C and 7D; and paragraphs 71-73).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the assembly of Chen by adding at least three externally directed self-centering lobes to the positioning device, as taught by Shibayama, in order to prevent the positioning device and the thermistor from shifting out of position due to the pressure encountered when the positioning device is inserted.

***Response to Arguments***

15. Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

Art Unit: 2859

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mirells Jagan whose telephone number is 571-272-2247. The examiner can normally be reached on Monday-Friday from 11AM to 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on 571-272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MJ  
October 13, 2005



**Diego Gutierrez**  
**Supervisory Patent Examiner**  
**Technology Center 2800**